

now our farmers in most parts of Scotland and England have no difficulty in obtaining drainage materials. There is no good reason why the same thing should not result here. There are ample deposits of clay in many parts of Canada well adapted for brick and tile-work. There are deposits in the immediate neighborhood of Kingston which may no doubt be worked to advantage, and which, in the nature of things, cannot possibly be idle after a permanent demand for drain tiles is established.

By growing in rich soil and supplying all the conditions necessary for luxuriant growth, many plants which in their wild state are unfit for any useful purpose, have been rendered subservient to the wants of man.

[Here the origin of many of our cultivated crops, such as wheat, turnips, cabbages, &c., was explained.]

When we think of such improvements in the common plants we rear, it affords much encouragement to those who would direct their efforts in this direction, with a view to the raising of new varieties. And here I would observe that much remains to be done in this way in Canada. We Scotchmen, and Englishmen and Irishmen, are prone to imitate the British institutions and British practices. Many of these have been introduced and have proved of great value, but some have been found unsuitable to the conditions of Canada.

In the choice of varieties of the leading crops in the kinds of wheat, and of barley, and of oats, and of turnips, the Canadian farmer has hitherto depended chiefly upon varieties obtained from Britain. But the climatal conditions of Britain are so different from those of Canada, that it is impossible to believe that the varieties best adapted to the former are likely to be the most useful to the latter.

The raising of new varieties better suited to the climate than those now in existence, is surely a matter of no small importance to Canadian agriculture, and I earnestly trust that it may receive the attention which it so well deserves. It is a slow process, however, and the farmer who undertakes it, must

“ Learn to labor and to wait.”

But I may naturally put the question, Have you already ascertained with any degree of accuracy that old varieties of wheat and of barley, of oats and of potatoes, of turnips and of other forage and pasture plants, are adapted to the circumstances of Canada? No doubt much useful information has been elicited. It is impossible for so many active farmers to have lived in Canada, stirring the soil from year to year, and watching the growth of the crops, without acquiring much experience on this point. Still, when I think of the many varieties known in Europe adapted to every kind of soil and situation, it is impossible to believe that there is not still room for well directed experimental inquiry on this subject in Canada.

It is now well known that the choice of suitable varieties is even more important than the choice of good soil, or the application of manure; for our scientific agriculturists no longer regard the plant as a mere machine acting a mechanical part, and guided by certain chemical changes. It is a far more subtle thing; it is guided in its development by the laws of life, which overrule all chemical action: thus chemistry is no longer the solitary guiding star of the scientific farmer. Physiology must go with it, hand in hand, in all that relates to improved cultivation.

When improved varieties are once obtained, high cultivation is necessary for the continuance of those properties that render them valuable.

When cultivated plants are neglected and allowed to grow in a poor soil, they soon revert to their wild condition. It therefore requires a continuance of suitable conditions to perpetuate those peculiarities which render them useful to man. In the first place, the soil must contain in sufficient abundance those elements required for building up the plant's structure. If they are not present naturally, they must be supplied in the form of manure, which may be of various kinds, according to the circumstances of the case. As Sprengel observes, “a soil is often neither too heavy nor too light, neither too wet nor too dry, neither too cold nor too warm, neither too fine nor too coarse; lies neither too high nor too low, is situated in a propitious climate, is found to consist of a well proportioned mixture of clayey and sandy particles, contains an average quantity of vegetable matter, and has the benefit of a warm aspect and favoring slope;” but although possessed of all these advantages, it is yet unproductive, because it wants some mineral constituent required for plant food.

The soil may be naturally unfertile, or originally fertile; it may have become barren through long cultivation. In a new country there is a strong tendency to carry off